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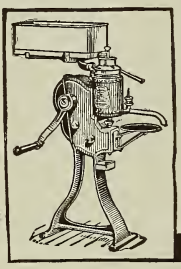

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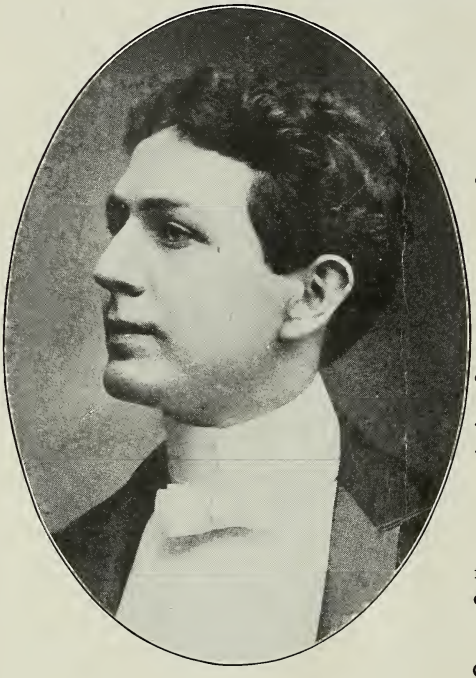

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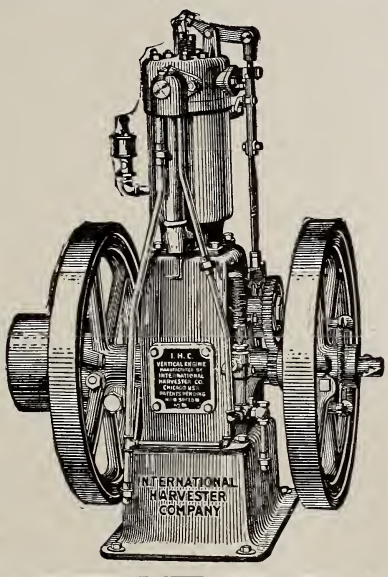

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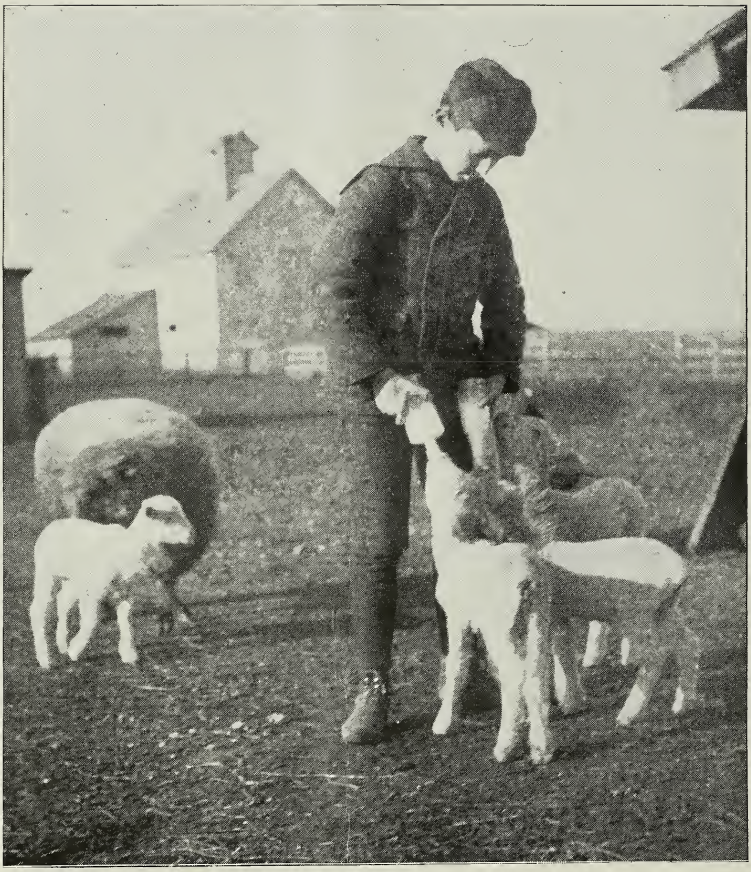


DINNER TIME

THE AGRICULTURAL STUDENT.

VOL. XV. OHIO STATE UNIVERSITY, COLUMBUS, APRIL, 1909 No. 7

THE DUAL PURPOSE COW

By Chester S. Strong

What is a dual purpose cow? To answer in the fewest possible words, she is a cow equally useful in producing either milk or beef. She is a type midway between a dairy and a beef cow. Of course it is not to be expected that she will produce as much milk as a dairy cow; neither is it expected that she will be as useful in producing beef as a cow of one of the so called beef breeds. At the present time we hear much talk about the dual purpose cow, and we also read a great many articles in books and papers describing her and discussing her merits and demerits; still there are, comparatively speaking, but few who really have clearly in their minds the type necessary for a good dual purpose cow. While she has been increasing in popularity during the past few years, and will continue to increase more rapidly in the future, as people become better educated in regard to her merits, I think one of the most important factors, if not the most important one, is the fact that there has been such a diversity of opinion as to what should really be the type of a true dual purpose cow. We find at the present time three recognized breeds of dual purpose cattle—the Red Polls, the Devon and the Brown Swiss. In each of these breeds, but especially in the first two, are found two distinct types. First, those which incline more to beef making than to milk production, and, secondly, those which lean more towards the dairy type than towards the beef types. The first are being bred and championed by the man whose inclinations run towards beef production, and the second are being produced by the man who leans towards dairying. If we are ever going to reach the point where dual purpose cattle with uniformity in type and usefulness may be produced, it is compulsory that all agree on a certain standard and then work together to produce as nearly as possible a cow to fit that standard. As a matter of course there will always be a diversity of type to a greater or lesser extent, just as at present there is a wide diversity of type in all breeds of animals, but the thing desired is to get as nearly one uniform type as possible.

But now I hear someone say: "Is it possible to produce a cow which will produce a large quantity of milk and whose progeny will be good beef animals?" Yes, it is possible. At the present time there is in the O. S. U. herd of cattle a seven-year-old grade Red Poll cow, which has averaged during the past two years over 7000 pounds of milk and 316 pounds of but-

ter fat per year. This cow is a large, smooth animal, and, while not of the extreme beef type, still she would make quite a good butcher's beast. In many places are found records of Red Polls, Devons and Brown Swiss cows showing good milk yields and at the same time the steers from these cows made good gains and dressed out a good carcass with good percentages. These prove that it is possible for the same cow to be a good milker and also produce good steers. To do this, however, she must be bred right and handled properly.

The form of the cow should be midway between that of the extreme beef and dairy types. She should not be so angular and thin-fleshed as the dairy cow, nor should she be so broad, deep or heavily fleshed as the beef cow. While in milk she would perhaps be rather lacking in flesh, but when dry and being fed for beef production she should take on flesh readily. One thing that should not be forgotten is that a well developed udder is necessary if she is to be a good milker; so in breeding you should pay due attention to the udder.

One of the main reasons why the dual purpose cow is coming to the front so rapidly is that both dairying and beef making have been carried to extremes. The dairymen say that the beef cow cannot produce milk enough to raise her own calf, and that the beef men think of nothing except beef production. On the other hand, the beef men say that if we depended for our beef supply upon the dairy cow we should fail. While both sides are correct to a certain extent, still they will each deny that such is the case and will say that they have animals in their breeds which will produce both milk and beef. This is true to a certain degree, and, while a dual purpose cow is a dual purpose cow, no matter where she be found, still if bred for beef or dairy production alone and she turns out to be a dual purpose animal there will be no certainty as to what the future breeding of that cow will produce. For this reason we should get animals which have been bred for many generations to produce dual purpose animals, and then we may be reasonably certain as to the kind of animals we shall get. Now, do not understand that I have no use for the real beef or the real dairy cow, for they have their proper places and very probably always will have, but I think that the best cow for the average farmer to keep at the present time is the dual purpose cow, and to produce her he must breed intelligently and not be content to trust to "luck" or "chance" in breeding for her production. The great reason that there are not more dual purpose cows now is the lack of intelligent breeding to produce them. She may be produced by cross-breeding or by breeding grades, if it is done carefully and managed properly; but the best plan is to take some breed and breed them pure, never forgetting the fact that you are working toward a definite and fixed standard.

SOME THOUGHTS ALONG THE LINES OF AGRICULTURE AND DOMESTIC SCIENCE

By Shirley Fawcett, Member of the First Four Weeks Course in Domestic Science

Should a country woman study these things as they are now being presented by our college? And will they help her in the performance of her life work, granting that some time it will be home-keeping?

In general, all knowledge is of value, and he who is ever ready to learn is most learned. But surely none of us can afford to rest in ignorance concerning things with which we are most closely associated in our everyday living; and, no matter how old or how young, there is still much that we know not.

Suppose, in the case of the farmer, on the agricultural side: There was a time, not long past, when a person who was not possessed of sufficient intelligence to shine in any of the so called professions was put upon a farm, this being considered the last and least significant occupation for him and one in which brains were not at all a necessity. The fact that he without the education was able to produce there a sufficiency for his livelihood only proves what wonderful things may be done by he who knows and understands the principles by which Mother Earth will give up her treasures.

We must consider farming as a business, and a mightly big and interesting one, to say the least.

It has been said the farmer is the only business man who is working in a direct partnership with God to make money. He is the creator of wealth; he brings it from the earth. Take away the results of his labor and we have not left upon the earth one thing on which to base material value.

In these days the person who is engaged in farming must have a practical knowledge not of one particular science, but of a dozen. Of agricultural chemistry, to know the properties of his soil; what he must feed it and what it abounds in. Of biology: Of farm mechanics, to use with intelligence and care the greater and greater amount of machinery made necessary by increasing scarcity of labor. Must know about the nutritive elements in feeds and the principles of animal nutrition. Needs some practical knowledge of veterinary medicine; the life of an animal may sometimes be saved by a little knowledge of surgery or medicine and in being able to administer it at the time needed. Then there is horticulture, a study of the growth and care of orchards for the fruit supply, the vegetable and small fruit garden, and shrubs and flowers for the home surroundings. One may go on enumerating many more of the various lines in which lie the interests of the farmer, but these are enough to show that in this day the rule of qualifying for a vocation might be changed somewhat, and when a person seeks work in other lines it may be because he is not wise enough to be a farmer.

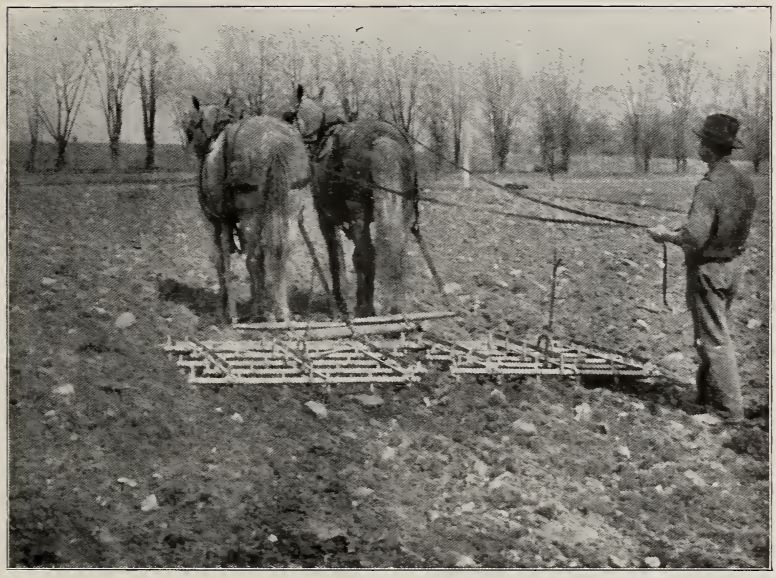
Now, then, shall we question the advisability of a woman studying all this. We can think of no reason why she should not. It may hold out to her as interesting a field for study as any other. If she has to be dependent on herself, as some do, in the planning of farm work and overseeing it, then she certainly needs it as much as man ever did. For just as surely as an em-

ployer does not understand and know the way in which his helpers should perform their labor, just as surely will he fail to get the best work from the men in most cases; and if the woman in the case is not to be dependent on herself, then she needs almost as much to know about the business which the man who is her home-maker desires to make a success, partly because he wishes to do a good work and more because he wishes to add to the comfort and happiness of his home-keeper. I know of homes which have been made unhappy and men who have failed largely because their wives were so dissatisfied with country surroundings and gave themselves no concern about the interests of their husbands. It seems to me this is the wrong attitude, and I think her lack of interest comes largely through lack of understanding.

To be sure, one could not expect to learn here in a few weeks all there is to know. We will have to experiment for ourselves with some of the truths we gather to fit them to our own conditions. But we do learn how to see, get new ideas about old things, new hopes and inspiration. The door of knowledge is opened to us; somehow we seem to get more closely in touch with things, are awakened to the interesting little story of life and development bound up in whatever task is ours. The all absorbing study of living things—which are the real things, whether they be the little plants we tend or the animals we care for. And until we see, and in seeing desire to see and learn more and more about these little curios richly stored with truths so interesting and so inexhaustible we will fail to find pleasure in our work, without which work becomes drudgery. And until we can find pleasure in the performance of it we cannot expect the highest and best returns from labor. I fail to understand how any woman can be indifferent to these things once she begins to study them, and I believe she may help her farmer husband more than she knows by showing her interest, intelligent understanding and sympathy in his plans for his work. We do not mean to insinuate that she alone should be ready to help. There is the other side—her side. She, too, needs sympathy and interest in her home work, though she cannot always expect understanding. It seems to me one of the crying needs of our nation just now is that the home life of its people be more united, its members be more considerate of one another, more interested in each other; that there the youth of our nation receive their first impressive teaching in honesty, consideration for others, fidelity and right living.

Then, should we study domestic art and science?

We sometimes think if a woman knows how to fashion garments and prepare a dinner, it is foolishness for her to go to school to learn of these. The question is, does she really know how? There is the right and best way of doing everything, and then the other way. There is such a thing as a balanced ration for people as well as for live stock, and the woman who plans a dinner in which protein predominates for a man who is working hard physically is extravagant, no matter how well it is prepared, because he will either have to eat too much to get the necessary amount of carbohydrates to convert into energy, or he will go hungry. Likewise, if children get an excess of fats, their little bodies cannot develop properly, for they need the tissue building foods. Then, there is



the right way and the wrong way of cooking things, and when we learn how to do it thoroughly in the right way and make digestion an easier matter and plan a balanced ration and know how to figure on what is real economy in living, we have gone a long way toward lengthening the lives and improving the dispositions and increasing the finances of men.

In domestic art we get information on how to select materials for clothing, learn why certain cloths will wear better than others; how to furnish homes in good taste, so our rooms will harmonize and we can rest in them and be natural and comfortable. In all, the keynote is genuineness, simplicity and good taste.

In domestic science the main object is to teach what food to prepare for the greatest good of those who require it, according to their occupation, and to prepare it simply, wholesomely and economically. Judging from the interest manifested by the older and more experienced students, I think I might almost say perhaps they are learning nearly as much as we. Indeed, probably our greatest benefit comes from the inspiration we get and the learning of how to find pleasure in the doing of things we thought so tiresome.

Another benefit comes from our association with each other—the things we learn by coming in contact with people who have methods different from our own, and the exchange of ideas. The men and women here who are at the head of these departments

are of worth morally as well as intellectually. We cannot associate with them even for this short time and not feel their splendid influence in character building. They stand for clean, honest manhood and pure womanhood, and hold the merited respect of every student.

Then, I want to say that we country women have no right to let it be said we are illiterate, uncultured and unable to appreciate the beautiful. There are other things to study besides farming and cooking. In reading we may by a few minutes perusal of daily papers and reviews keep in touch with worldly affairs in general. We may think we have no time for this—we housekeepers who are busy all day long and never get through. But I know one of these who gets in a little time every day by using the scraps—so to speak. She takes a paper—say the Literary Digest—to the kitchen with her when she goes to prepare breakfast. She finds a minute now and then to read an item; she reads between times while she is baking griddle cakes (she doesn't burn them either); she often finds a few minutes before serving dinner, while waiting for the men to come; she reads while she churns, usually a magazine, for she has time to read a longer article. There are other ways; not every one could arrange it this way, but until you try you don't know how much you really can work in when you thought you had no time at all. We must cultivate a taste for the best in literature, for we have no time to waste on trashy things, and we who are situated far from outside entertainment must depend largely on this inexhaustible resource for pleasure and education.

We need never lack for fine art to study and enjoy, for we are situated in the midst of all that is real and beautiful. Many of us see pictures every day which the hand of man can never hope to equal—pictures painted in living colors by the hand of the Creator. It lies, then, within us whether we shall let our lives be barren, empty, a chasing after vain amusements, a blindness to the good and beautiful to be found everywhere, or whether we shall live full lives, lives that have work to do, and try to do it, that are quiet and deep and happy in understanding of the things worth while. We must not look back and say they of yesterday lived unlike we and were happy and content in ignorance of much of this, for our age is like no past one and cannot be lived as they lived in that day, though each mode of living was fitting for its time. We realize—

New occupations teach new duties;
Time makes ancient good uncouth.
They must upward still and onward
Who would keep abreast of truth.

Lo, before us gleam our campfires—
We ourselves must pilgrims be.
Launch our Mayflower and steer boldly
Into the desperate winter sea;
Nor attempt the future's portals
With the past's blood rusted key.

FLOCK MANAGEMENT

By Geo. A. Dix, '11

To start into this line of animal husbandry probably requires more knowledge and experience on the part of the owner than in the handling of any other class of live stock. Thus, it is highly advisable that the average farmer should start with a small flock, letting it increase gradually by saving the best ewe lambs each year until the owner learns to love and understand the innocence and gentleness of his flock.

Be considerate and exercise good judgment in selecting the ram, as he is more than half of the flock. Select essentially a pure bred animal of smooth, well balanced conformation, one that shows strength and vigor, thus giving strength and constitution to the new flock of which he is to be the foundation. Likewise, in selecting the ewe lambs from the flock for breeding ewes, choose the short legged, deep bodied, compact lamb, with a deep, wide breast and straight, strong back, with a good, heavy covering of wool.

Before the breeding season in the fall the flock should be carefully gone over and all ewes that appear to be breaking and becoming weak and undesirable separated out. These may be disposed of by a course of careful feeding and sent to the butcher or elsewhere.

The temptation to breed the young, immature ewe that will be under two years old when her first lamb is dropped, should be strenuously avoided, even if she is large and well grown. Such practice not only leads to the decrease in size of your sheep, but so weakens the constitution at this early age that a ewe seldom can overcome it, also making her more predisposed to infection by parasites.

Care of Flock in Winter Months.

It is good practice to allow the pregnant ewes abundance of room in stable and yard, that they may take exercise, as it is in accordance with their nature to roam about and take a great deal of action. Then, when their lambs come, they are stronger and more vigorous and give less trouble than when kept closely confined. It is our practice at home, when the flock is confined to shelter and on grain feed, to turn them into a bluegrass pasture, which joins the barn lot, for a few hours each afternoon when the weather is not stormy. Here the ewes will take sufficient exercise to keep in good health.

Conditions essential for a satisfactory sheep barn and feed lot are: (1) Barn should be well ventilated and lighted, as it always results disastrously to confine sheep in a poorly ventilated barn.

Breeding ewes should never be crowded for floor space. There should be provided abundance of feed-reck room, so that there will be no crowding, as shortage of rack room allows the stronger animals to crowd out the less vigorous ones, which should have the advantage and best attention. (2) Feed lot located preferably on the south side of barn, and should be dry and well drained, as healthy feet in sheep cannot be maintained in a low, muddy yard.

We find it most satisfactory to separate the ewe with the new born lamb from the flock for a few days. A

nurse pen in one end of the barn is a convenient equipment for this purpose. Here the grain ration is given very sparingly for a few days, more bran and oilmeal being fed. In three or four days she will again need her full grain ration. Not only here, but at all times, breeding ewes should have free access to pure water.

At this point the feeding of the lambs may well be considered. At the age of two weeks lambs develop an appetite for solid food. Advantage of this should be taken and the lambs given access to small quantities of ground grain, as a more economical gain can be made at this stage than at any time later.

Summer Care of the Flock in Pasture.

The sheep, an upland animal, loves the short herbage of hill and mountain side, seeking dry situations for rest. Although this is worthy of much consideration, exceptions to this rule exist. Flocks are now maintained at a good profit on practically level land. A uniform supply of pasture is of vital importance, and probably the best way to maintain this is to have a change of pasture. Second, avoid over-stocking a pasture, which is an "over-doing." But few of us can escape this charge, for it is confessedly entirely too common an error.

Too many of us imagine that sheep can be supported on little or nothing,

while others suppose the larger the number they can assemble on their premises the greater must consequently be the returns of profit. The fact is that one hundred sheep well fed and well managed are more profitable than the addition of one-quarter more if ill fed and otherwise insufficiently provided for, and also provides to a marked degree the cause of the Strongyphus Contortus parasite or stomach worm. This is a small worm, but one-half to three-quarters of an inch in length and with the diameter of a hair. It lives in the fourth stomach, where an important part of the digestion takes place.

When the stomach is infected with these tiny worms, digestion is wonderfully disturbed. The animal becomes weak and sluggish, and the wool appears dead. The skin becomes pale, and the lamb loses its appetite and usually scours. These worms are very common. They may attack lambs at any age after they begin to eat grass until cold weather comes.

Parasites are not so destructive to very early spring lambs as they are to late lambs.

The growthy and vigorous early lambs have enough vitality and strength to overcome and throw off the effects of the parasite.

Such parasites effect all sheep as well, but do not harm them seriously.

The best preventive for this trouble is frequent changing to fresh pasture of clover, blue grass, rape, etc.

Also tobacco dust mixed with the salt is effective as a preventive.

To this end we may conclude that the fundamentals are: Attention to flock, careful consideration in selection, and ever aiming to maintain a young and vigorous flock.

WHEAT GROWING IN SASKATCHAWAN

By George Worman, '12

The successful growing of wheat in Saskatchawan requires just as much care and diligence as that of any other part of the world. True it is that with less labor we secure greater yield than this part of the wheat-producing area, but just how and when to direct this labor and operations is the point requiring skill, because beside the conditions, we have here you have just the contrary. Spring wheat is universally grown in this province and the varieties sown are mainly Red Fife. The quality far excells that of wheat grown in Ohio, the berries being large and plump, of a rich deep red color bordering on yellow, and of a glistening flinty surface. The grades produced are six or seven, running from No. 1 to No. 6 Northern, the frosted and immature grades being classed as Nos. 1 and 2 feed. The bulk of wheat produced will grade No. 2 Northern, which brings a price but from two to four cents less per bushel than No. 1 Northern.

As the method of preparing a seed bed for wheat on old ground is more or less common to all, I shall endeavor to give the reader an idea of the preparation of prairie ground for the first wheat crop. The first thing to be observed is to break the ground in due season. Breaking is a Western term used for plowing prairie that has never yielded to a share before. By due season is meant the time from April 20 to July 1. This is the season of heavy rain-

fall, during which the ground yields more readily to the plow and on account of which the turned sod disintegrates rapidlv. The heavier soil, either of clay body or "gumbo" formation, is turned at a depth of from two to three inches and let lay until well rotted, which will be about August 10. Then the settler again hitches to his gang plow and turnes back the ground, with an additional two inches of loose subsoil. This body is worked down to a good seed bed by the use of common tools, only all tools are four-horse size. By this time, if the farmer has a good acreage and has planned well, the season of frost is on hand and operations are suspended for the winter.

When spring has again returned and the Chinoke winds have cut the banks of driven snow, and the fields show black and fertile and when the land has become suitably dry, the drag harrow is used and all is ready for the seeder. Seed wheat is soaked in a solution of bluestone or formaline to prevent smut, loaded on wagons loosely and coupled to the rear of the four-horse seeder when the farmer makes his way to the field. Single disc drills are used mainly in new countries, having from eighteen to twenty-two hoes. The grain is sown from one to three inches deep, the nature of soil being the determining force. Light, sandy soil requires deep sowing, while the heavier land requires less depth of seeding. The packer has proven a great and profitable implement in the West, being a machine something like a roller, only the rolling part is composed of separate cast wheels, each wheel weighing 100 pounds. This implement not only pulverizes, but so thoroughly packs the ground about the seed that germination takes place readily, and moisture is also held during the season. It has been said that a binder runs a horse lighter where a packer has been used.

The time of spring opening and consequently that of seeding varies considerably, from as early as March 1 to the latter part of April, but from about the 10th to 20th of April has proven the most satisfactory. During the time the grain is maturing the farmer is busied preparing next year's ground, either for the summer following, if an old settler, or preparing new ground.

Harvest comes in the latter part of August and the first of September. In very new countries, when grain has been held back from one of several causes, which might be late spring or cold and unfavorable weather, the frost sometimes catches the grain. This causes the farmer great loss, causing a loss of weight in grain and a loss of grade and price. If seriously frost-bitten, the grain appears of a pale color, with very noticeable wrinkles of the outer skin.

Very little grain is stacked, and none is mowed. The autumns are dry and fine, and grain stays in good threshing shape in the stook or shock, from which it is threshed. Threshers generally furnish their own bundle teams, from eight to twelve teams following the outfit, depending on the size of separator and engine, which latter sometimes is as large as forty-two horsepower. Cook and bunking cars accompany the outfit, and grain is either elevated into granaries in the field or else into tight wagon boxes and hauled loosely to market granaries at the barns. Grain is generally shipped by farmers to commission men in Winnipeg, where it is graded and sent to Port William or Arthur and the East.

MARKETING FRUIT

By Charles M. Richardson, '10

The most important consideration when one starts to grow fruit is the market. For he may grow good crops and yet fail because his fruit will not stand shipping or is not what the market demands. So first one should study the market, its proximity, its demands and the shipping quality of his fruit.

Within the last twenty-five years fruit growing has increased enormously in the United States, all out of proportion to other agricultural industries. It now employs vast sums of capital, furnishes a livelihood to thousands of men and usually yields tremendous profits. The development of the fruit industry in the United States has been chiefly to supply the wholesale trade. America leads the world in the large quantities of fruit produced and in the perfection with which the fruit is distributed to distant points. From 1850 to 1897 the fruit production in the United States has increased 2000 per cent., while the total population has during the same time increased 270 per cent. The larger part of this increase has been in certain localities, where whole neighborhoods have gone into the production of a certain kind of fruit, as strawberries, peaches or apples.

The fruit markets of the United States are divided into two general classes. One of these may be called the indirect, general or wholesale market. The other class is the direct, special or retail market. These two classes of markets are very different in many respects. In the general market large quantities of fruits are handled. The margin of profit per bushel or quart is much less. The fruit is handled through a commission man, and it comes into competition with the world. The general market requires a few standard varieties of good appearance, but regardless of quality, which will bear shipping and rough handling and which are packed in a standard package that is not returned to the shipper.

In the special market, small quantities of fruit are used, the margin of profit per bushel or quart is much greater, the grower is his own salesman and often sells to the consumer direct. He meets only local competition, and with regular customers this competition is eliminated. The private market demands a larger number of varieties. It matters not whether the variety is standard, but it must have quality even in preference to appearance. Also these varieties do not have to conform to the shipping test. The fruit does not have to be marketed in a standard package, and the packages are usually returned. The private market also furnishes an outlet for fruits out of season and pays well for them.

There are several successive problems which must be solved by the prospective fruit grower. First, the orchard must be started and brought to bearing age without any profits whatsoever. That is, you have to have capital to make your investment, and then you have to await returns. After the trees commence bearing, the fruit must be picked, graded, packed, stored or shipped to market. The margin of profit over the cost is affected quite materially by the proximity of the market and the railroad rates to your

market. Then, again, certain markets will pay a premium on certain varieties and entirely reject others, and other markets will pay a premium on the fruit which the first market had no use for. Hence, the demand of the different markets must be studied and the fruit sent to the place where it is wanted.

Most of the fruit which is shipped to market at a distance is handled by commission men. The grower ships his products to a certain commission man, who acknowledges receipt of the shipment by postal, also specifying in what condition the fruit was received. When the fruit is sold, he makes his returns to the shipper, stating the number of packages, selling price of each lot and the gross amount received. Express or freight charges and the commission are deducted, and a check is enclosed to cover the balance.

Some commission men are honest; others are not. By this method of operation there is abundant opportunity for cheating, as by not returning sufficient money, etc. Some shippers are dishonest also in packing and grading their fruit, but the commission man soon finds this out and is bound to get even, though perhaps at the expense of some other honest shipper. Some shippers endeavor to protect themselves from dishonest commission men by dividing the shipment between two firms. This works fairly well if the commission men do not find it out.

However, in the long run, it is best to make all consignments to one firm in each city to which you ship. Always have all of your fruit graded and of uniform quality throughout. Have it packed in a neat, standard package, and have a neat, catchy brand on each package. In this way you get the confidence of the dealer and build up a reputation for your brand with the ultimate consumer, thus creating a demand for your product. It is also well to keep in touch with the commission man and thus be able to ship when he wants it, so that he can dispose of your product to best advantage.

Another market which is as yet comparatively undeveloped is the European market. Some apples are shipped there from the United States and Canada, and the latter has shipped a limited amount of other fruit. Very good shipping varieties must be used for this trade, and it must receive first-class packing in order to withstand the hard handling it receives on the ocean and on the wharves.

Sometimes growers become dissatisfied in dealing with the commission men. There are two ways to escape this—by co-operative selling associations and by private markets. The co-operative associations possess certain advantages and disadvantages over the commission system. The advantages are that a salaried salesman may be employed in each large market. By this means the growers are in direct touch with the various markets and can thus ship their fruit to the best advantage, governed by the supply and prices at each market. Economy of production is another factor, for all the supplies, as sprays, fertilizers and packages, can be bought at a cheaper price. Transportation companies will endeavor to give better service; storage can be secured more easily, and the prices can be governed by controlling the output.

The disadvantages of these associations are that there is liable to be dissension among the members concerning management; also inability to secure a uniform method of grading the fruit among its patrons, thus causing

an inversion of competition, because the first-grade apples of a fancy apple grower enter the market in the same class as the first grade of the ordinary fruit grower, thus destroying all incentive towards producing fancy products. But these disadvantages are such that they can be remedied if wise and impartial management is practiced and there is unity among the growers. These associations are of the most practical value to those growers who live at a great distance from the large markets, as in the West or on the Pacific coast. They are not so much of a success where there are large villages and cities near, because many of the growers will have a special market.

When the markets are a long distance away, refrigerator cars are the best means of shipping perishable fruit, as peaches or strawberries. Special arrangements have to be made with the railroad companies for these cars, in order to have the ice renewed along the route.

The special market is of use to the grower who is located near a large town or city. There are three classes of special market: First, the grower supplies the private consumer directly; second, the grower disposes of his products to the fruit and grocery stores directly; third, the fruit is sold on the market in large cities.

The first of these methods is the most lucrative and furnishes the best means of disposing of fancy products. For this market one should have a market wagon of a neat, plain appearance, with the name of the farm and grower displayed quite conspicuously. A regular succession of fruits is wanted throughout the summer and fall. One should have a regular route and make regular trips on a specified day once or twice a week. In this way one secures regular customers, who expect you and will prefer to buy of you rather than from those who commence later in the season and who are irregular in their visits. With this market, where you deliver your products direct to the consumer, it is advantageous to grow fancy garden stuff in sufficient amounts to supply the wants of your customers, because it is no more trouble to market a large list of fruits and vegetables than a small list, and you are more liable to be able to sell something at every house. Butter and eggs can also be added and sold at a very fancy price. The prices received in this market equal or excel the retail prices of the groceries or fruit stores, and the people had rather buy of you than of the groceries, because they know your products the first class and fresh.

Another method of having a special market is to sell directly to the groceries and fruit stores. To make a success of this method the fruit should be first class and delivered in attractive packages. Previous arrangements should be made with certain stores to supply them with all the fruit that they can use. By this means you can have a more reliable outlet for your fruit than when it is sold to the stores promiscuously, and a better price can very likely be commanded. The practice of supplying individual stores with a fancy product can be followed by growers who live some distance from the city. They can send samples of their fruit directly to these stores, and the merchant, if he is satisfied with the samples, will place his order with the grower for what he desires. And if he receives what he wants every time he will very likely remain a good cus-

tomer and will pay the grower a much better price than the commission man would.

Another method of direct marketing is that where the grower hauls his produce to the general market of a large city and acts as his own salesman, selling his load to private individuals or to merchants or hucksters. This is the most common means of crop disposal by those who live within thirty miles of a large city.

Another item which is vitally connected with the profits of the fruit grower is price. Price is directly associated with the supply and demand. Prices increase with demand and decrease with supply. This can be represented by the formula

$$P = \frac{s}{d}$$

in which P= price, d= demand and s= supply. The profit realized by the fruit grower is the difference between the cost of production and the price received. When the supply increases, the price decreases and gradually approaches the cost of production. When the price received just equals the cost of production, the margin of profit has been wiped out, and the price cannot stay long below this. Since price is chiefly influenced by demand and supply, the factors controling these should be known.

The market supply is governed first by production. Production depends on the weather and upon the ease with which the crop is grown. Hence, apples are grown abundantly, and nectarines or apricots sparingly. Production varies also with the price. High prices stimulate production and diminish the demand. This causes the price to decrease, which results in decreasing the supply and increasing the demand, so that the varying ratio between demand and supply tend to keep the price nearly constant.

But the influence of other factors, as the uncertainty of the weather and the gradual increase of the consumption, tend to cause the most violent fluctuations of the market prices. Increased transportation facilities also tend to take more fruit to market and thus depress prices. Telegraphic communication between the growers and the different markets furnishes an excellent means of regulating the distribution of fruit. Perishable fruits are subject to extreme fluctuations in supply. When fruit can be stored, it tends to equalize the supply.

The conditions affecting demand are price, quality, acquaintance, season and supply of other fruits. Price influences production and so reacts upon itself. Nothing else will move a quantity of fruit so quickly as an attractive price. Fruit of good quality increases the demand. Fruit whose quality is known to the consumer has a steady demand, whereas a fruit of superior quality but which is unknown to the consumer has no demand whatever. Fruits are generally in demand at their season, but fruit sold for canning in August will not have as great a demand as later fruits of the same kind sold in September. Again, the supply of other fruits influences the demand for a certain class of fruits. Thus, if peaches are abundant and low priced, they will very likely detract from the demand for plums, because many people prefer peaches to plums and will not buy the latter if they can get the former cheap enough.

The utilization of waste fruits, as culls and specked fruits, is an important economic factor of fruit disposal. The ways in which these can be util-

ized are in drying, canning, jelly making, cider making and stock feeding. When prices are below cost of production, good fruit can be put to these uses at good advantage. The skillful utilization of waste can be used to add a considerable amount to the profit side of the account.

SPRING MEETING OF THE COLUMBUS HORTICULTURAL SOCIETY

The regular spring meeting of this well known society was held Saturday afternoon, March 20, in the assembly room of the Board of Trade.

There was a fairly good attendance, and the meeting was equally interesting and instructive. Among the papers presented were the following: "Hardy Plants," by Mr. J. W. Elliott, a landscape architect of Pittsburg; "The Rose," by Mr. Conard, of the Conard-Jones Company, rose specialists, of West Grove, Pa.; "The Site, the House, the Garden," by Secretary Gribben; "Trees and Shrubs for Lawn Decoration," by Professor Lazenby.

The advantages of hardy herbaceous plants over the ordinary tender bedding and annual plants were clearly pointed out, and a short list of the most desirable, like the paeonia, phlox, iris, sunflower, hollyhock, lily and others were fully described.

As might be expected, Mr. Conard made a strong plea for the "queen of flowers," and gave many valuable points for the amateur rose grower.

The long and successful experience of Secretary Gribben as an architect enabled him to speak with authority on the important points to be considered in the establishing and decorating of new homes. He discussed the location, with reference to convenience, kind of soil, healthfulness, elevation and slope of land, marked natural features, as trees, rocks, water, etc. He emphasized the fact that in building a new home the architecture should be in keeping with the surroundings and within the means of the builder. It is a great mistake for the owner to put his last dollar into the home and have nothing left for external decoration and be obliged to leave the immediate surroundings in an unkempt and slovenly condition.

Professor Lazenby said that it is not the mere planting of trees and shrubs that make a beautiful place, but rather their proper arrangement. Much of the planting has no design and is a violation of the principle of unity. The aim of all planting about the home should be to produce a picture or landscape, and this can be done on small grounds as well as on large areas.

THE AGRICULTURAL STUDENT

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APRIL

EDITORIALS

The constitution of the Agricultural Society provides that the editor of THE AGRICULTURAL STUDENT shall be elected at the first meeting in March and that he shall edit the April, May and June issues of the paper under the supervision of the previous editor.

We have wondered much as to why this arrangement was made. Why the new editor should start in the middle of the year. We don't wonder about this any more. We honestly doubt if this issue would have been off the press in April if it had not been for the assistance of the out-going editor. In a little paper like this you may not think that there are many details to be seen to and maybe you are right, but to one without experience there seemed a multitude of them and we are glad of the wisdom of those who framed our constitution.

There are many things we hope to do while the paper is in our hands. It is our aim to increase the circulation and to make the paper bigger and better; but in order that we may do these things we must have the earnest support of every student in the College. We ask this of you, not as a personal favor to us, but because you owe it to your paper, and you owe it to yourself.

When we ask you for a contribution, have it ready on time, so as not to delay us in getting out the paper. That is a little thing for each of you to do, but it means a great deal to us. Another way you can help is to see that your friends subscribe for the paper. It all helps. So let us all work together and by so doing help us to realize our hope, to make our paper second to none with any other college paper in our land.

SUPERINTENDENT GRAHAM'S EFFORTS SUCCESSFUL

$20,000 Appropriation for Agricultural Extension Work.

During the last session of the Seventy-eighth General Assembly of the State of Ohio a bill was passed providing for Agricultural Extension work by the College of Agriculture and Domestic Science of the Ohio State University. For the purpose of carrying out the provisions of this bill the Legislature appropriated the sum of twenty thousand dollars ($20,000), the same to be available on or after the first day of July, 1909, and to be expended under the direction of the board of trustees of the University.

The bill provides for the holding of schools throughout the state in which instruction shall be given in soil fertility, stock raising, crop production, dairying, horticulture, domestic science, and kindred subjects. These schools shall not exceed one week in length, and not more than one shall be held in a county during one year.

The Legislature did some fairly good work at its last session, but in the passage of this bill a long step has been taken in the right direction. Ohio is primarily an agricultural state and better still, always will be. Other states may laud their crops, their climate and their soil, but Old Ohio is always in the money, no matter what class she enters. Therefore it behooves us to turn part of our educational efforts to training the farmer's son. Heretofore we have heard a great deal about manual training; there has been great fear that our trades would die out for lack of apprentices and in this fear we have lost sight of our coming generation of farmers. But at last our eyes are being opened and the state is seeing a great light.

NEWS NOTES

The Winter Course students held a banquet at Beggs' banquet hall on March 17. The short course ended on the 18th, and this banquet was a final gathering of those young farmers who had made many friends among themselves in those ten short weeks. They absorbed college spirit, too, which was fine to hear as they gave vent to it in the college yells and songs. What can do more good for Ohio State than 200 young men scattered over the state, every one of them pulling for O. S. U.?

With Professor Vivian acting as toastmaster, the following program of toasts was enjoyed: Professor Plumb, "A French Way;" Professor Erf, "Sunshine;" President Thompson, "Improving Farm Conditions;" "Doc." White, "Preventive Medicine;" Paul H. Browning, "The Shorthorn;" Dean Price, "What next?" Director Thorne, of the Experiment Station, gave a short talk.

Some of the students who have been taking work in the Department of Zoology and Entomology at the University finish the requirements for degrees at the end of the Winter Term and have accepted positions beginning with April 1.

Among those from the University who accompanied the agricultural train which left Dayton Tuesday morning, March 23, on a five days' trip through the southwestern part of the state were Professor Plum, Professor Marshall, Professor Price, Professor McCall and Mr. R L. Shields.

Arthur L. McCray, who left college a year ago to work in apiculture with the Bureau of Entomology at Washington, and who returned last September to finish, will leave for Washington so as to be there April 1. Diseases of bees will occupy his attention part of the time in the immediate future.

L. L. Scott has just accepted a position as assistant entomologist at the Ohio Agricultural Experiment Station. He will be located at Lakeside, near Sandusky, for the summer, and will have as a special problem the investigation of the peach tree bark beetle, which is a destructive insect in the peach orchards of that section.

Roy L. Wildermuth and T. H. Parks have been employed under Professor F. M. Webster, who is in charge of cereal and forage plant investigations of the Bureau of Entomology. They will not go to Washington at present, but will be sent to some agricultural section and assigned economic problems concerned with insects injurious to farm crops.

Townshend Memorial Tablet.

The Alumni Association of the University is making an effort to secure a memorial tablet of Dr. N. S. Townshend, to be placed in Townshend Hall. There is a growing sentiment among the friends of the University that all of the buildings should be marked with tablets bearing suitable inscriptions. Unless this is done, the names will have soon lost their significance. Professor Burkett, of New York, of the class of '95, is sending out an appeal to all graduates, ex-students and friends of the College of Agriculture to help by contributing to the fund for the Townshend tablet. It is pro-

posed to raise $500, which will be sufficient to secure a very handsome medalion portrait tablet, bearing an appropriate inscription. Make a prompt response to this appeal, as it is desired to have this tablet in place and ready for dedication during commencement week of this year.

The last meeting of the Horticulture and Forestry Club, held March 22, was one of unusual interest. The following program was presented: "Forest Products," by L. L. Scott; "Some Landscape Effects," by B. Anspon; "Landscapes in the Kew Gardens," by Professor Davis, and "A Plea for the Garden," by J. U. Gribben.

The new four-year course in Forestry just published in the 1909 bulletin of the College of Agriculture, is meeting with much favor. The indications are that a large number will register in this course next year. The course leads to the degree of Bachelor of Science in Forestry.

Poultry Institute.

On March 9 and 10 the first poultry institute was held under the joint auspices of the University and the State Board of Agriculture. The meetings were held in the University chapel. Mr. Oscar E. Miles, of Columbus, presided over the first session. Mr. S. T. Campbell, of Mansfield, was the first speaker. He has had charge of the short course students in their judging work and gave a short address on "The Score Card and Its Importance." Mr. Campbell is an official judge of the American Poultry Association and he showed the value of understanding the rating of the various points of a fowl.

Mr. Homer W. Jackson, of Cambridge, Ohio, followed with an address on "Feeding for Egg Production." He laid emphasis upon the balanced ration, a variety of feeds and held that feeding over a certain limit was not profitable.

Professor J. G. Halpine, instructor in poultry husbandry at Michigan Agricultural College, was the next speaker. He called attention to necessary improvements of conditions now prevailing in raising poultry on most farms.

At the afternoon meeting on Tuesday, with Mr. Campbell as chairman, Mr. Miles gave a talk on "Breeding and Mating Rhode Island Reds." He made a very strong case for this popular breed, of which he is a prominent breeder and exhibitor. He was followed by Mr. W. G. Worcester, of the Ceramics department of the University, who read a very interesting paper dealing with "Poultry Husbandry on a City Lot." He clearly showed that the keeping of poultry was not only possible on a small lot, but could be made a source of pleasure and profit.

Mr. Chas. E. Cram, of Carey, Ohio, editor of the "Poultry Record," presented the possibilities of "Poultry on the Farm." Mr. Jackson described the various models of "Poultry Buildings."

Tuesday evening the largest meeting was held, in the Board of Trade Auditorium. About 500 were present to hear Professor James E. Rice, of Cornell, speak on "Poultry Education and Investigation in the United States."

Mr. A. P. Sandles, in introducing him, spoke of the importance of the poultry industry and gave great credit to Professor Plumb for the organization of the institute. Professor Rice held the close attention of his audience for two hours. He stated that the value of the output of eggs is second

only to that of milk and that the total annual value of poultry products is $600,000,000. Not until recent years has there been investigation into poultry problems, while a great deal of money has been appropriated for the dairy and horticultural interests. His address was illustrated with lantern slides showing the plants for educational and experimental work at various colleges and the results of a number of experiments carried on at Cornell. His address clearly proved that the poultry interests have not received the recognition which the importance of the industry deserves.

Mr. Campbell spoke to the institute Wednesday morning on "The Two-Hundred-Egg Fowl and Its Production." He favors line breeding and the use of trap nests to produce a "laying strain."

Dr. White being absent, Mr. Charles McClave, of New London, who acted as chairman of the meeting, spoke concerning "The Parasitic Diseases of Poultry." He described and gave remedies for cholera, roup and gapes.

In the afternoon session, Mr. Black was absent, and Professor Halpine took his place and gave some additional information in regard to Maine experiments in breeding for egg production. Professor Rice followed him with an address on "Constitutional Vigor" He thinks more stress should be laid on this point than on any other in selecting breeding stock. He illustrated part of his lecture with live specimens. He also touched upon moulting in connection with egg laying. Mr. McClave gave a valuable address on "Water Fowls and Their Production," with which he has had a great deal of experience. This address closed the program.

At Townshend Hall a small poultry show was held in connection with the institute. The Hartman Stock Farm, Mr. Miles, Mr. Fyffe, Mr. Campbell, Mr. McClave and others were the exhibitors. The students in the short course used these birds for judging purposes.

The interest that was manifested in these meetings seems to show that Ohio might well appropriate funds to establish a poultry course for an industry producing $19,000,000 annually.

Dates of Corn Show.

The National Corn Association has selected December 6 to 18 as the dates for the national corn exposition of 1909. It will be held at Omaha.

In selecting the dates named the National Corn Association has explained that the plans for smaller corn shows in all parts of the country made it impossible to hold the national show on any other dates than those selected during the first weeks of December. To hold it earlier would not permit the state shows to get their prize corn ready and shipped to the national show. When it is taken into consideration that Illinois alone holds 10,000 school district corn contests, some idea of the immense amount of preparation necessary for the state and national shows may be gathered. The state shows do not close before Thanksgiving week, and more than one week is required to get the prize corn and grains to the big show at Omaha.

To hold the national corn show later would conflict with numerous conventions and meetings, while a week earlier would conflict with the International Live Stock Show, an exposition which co-operates with the National Corn Exposition.

The management of the exposition has been advised of dates chosen, and Omaha business men will increase their subscriptions to $100,000 to promote the show of 1909, which will be much larger than the one of 1908.

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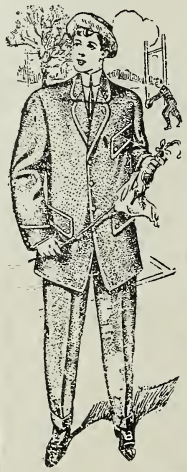

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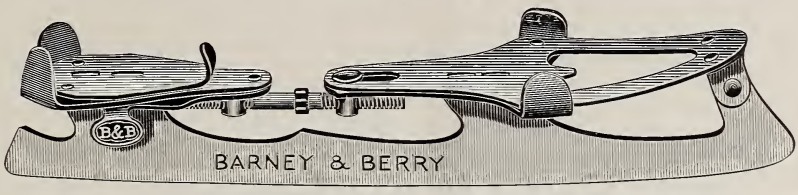

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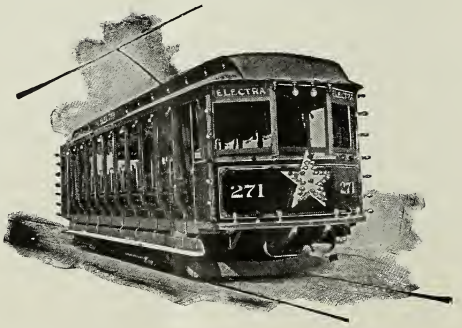

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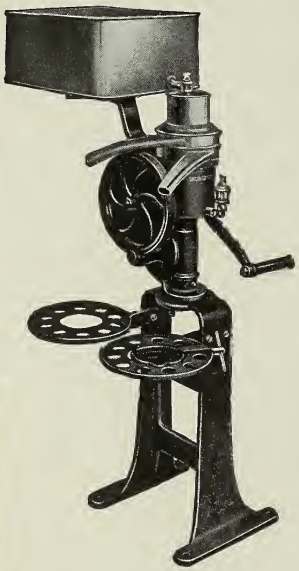

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